Cloe-out Report for DC Award No. 1312
Emerging Energy Technology Grant Fund

Overview

The Emerging Energy Technology Fund (EETF) program ran from 2010 until its statutory authorization was repealed on January 1, 2020. During this time, the EETF had three rounds of applications. This award from the Denali Commission provided valuable funding for AEA to perform vital programmatic functions: 1) program administration; 2) data collection, data reporting, and 3rd party verification; and project funding.

Because of the nature of the EETF, ensuring that the projects worked as expected was of the highest priority. Through this award, AEA was able to engage the University of Alaska Fairbanks, Alaska Center for Energy and Power (ACEP) to provide the data collection, data reporting, and 3rd party verification. ACEP's project reports provide an objective analysis of the EETF projects.

Five program managers (one the first and last)

Schedule:

The original award had a period of performance from August 2010-December 30, 2015. Later amendments extended the period of performance until 12/30/2018 and then to 12/31/2019. The extensions were needed for a number of reasons, including the false start with first round of application, and many of the individual projects project took longer than initially planned. The extensions allowed for the measurement and verification activities to be completed successfully for all projects.

Scope:

The scope of the original award was to fund project selection, data collection, data reporting, and 3rd party verification. The first amendment added funds to the award, but did not change the scope.

The second amendment drastically decreased the size of the award, but the funds were rerouted to individual projects that had been selected in Round 1 of the EETF.

The remaining funds were to be used for data collection and analysis. AEA contracted with ACEP to perform three main functions:

1) develop final data standards, data transmission methodology, and storage protocols for collected data;
2) Provide technical assistance and analysis
    a. Technical assistance in instrumentation placement, specification, and configuration, including review of system diagrams and instrumentation package
    b. Review of critical stage data reporting for consideration in AEA project milestone assessment
    c. Site visits to support and review data collection activities
    d. Monitoring of data collected during demonstration phases
    e. Independent analysis of system and component performance
3) Final reporting including data collected from the project, key system component performance analysis, findings, and a summary of lessons learned, including technology and research recommendations, from the project.

The Round 1 projects included:

1. Cold Climate Heat Pump Demonstration, Cold Climate Housing Research Center
2. Ultra-Efficient Generators and Diesel-Electric Propulsion, Genesis Machining and Fabrication
3. High Efficiency Diesel Electric Generator Set, Marsh Creek, LLC
4. Biomass Reforestation for Boreal Forests, Alaska Division of Forestry
5. Arctic Thermal Shutters & Doors, Arctic Sun, LLC
6. Safe and Efficient Exhaust Thimble, Institute of Northern Engineering, UAF
7. Enhanced Condensation for Organic Rankine Cycle, Institute of Northern Engineering, UAF
8. Oceana In-Stream Hydrokinetic Device Evaluation, Oceana Energy Company
9. RivGen Power System Commercialization Project, ORPC Alaska, LLC
10. BRI Cyclo-Turbine Energy Production, Boschma Reasearch, Inc.
11. Applications of Composite Flywheels, Hatch
12. Wind-Diesel Battery Hybrid for Kwgillingok, Intelligent Energy Systems
13. High Capacity Airborne Wind Turbine, Altaeros Energies, Inc.
14. Small Community Self-Regulating Grid, Intelligent Energy Systems
15. Arctic Field Testing and Power Curve Verification of the Renewegy VP-20 Wind Turbine –

After Round 2 of the EETF, AEA took some of the funds from contract with ACEP to provide a similar service to four more EETF projects:

1. Air Source Heat Pump Potential in Alaska, Cold Climate Housing Research Center
2. Trans-Critical CO2 Heat Pump System, Alaska SeaLife Center
3. Multi Stage Energy Storage System, Chugach Electric Association
4. St Paul Wind Diesel with Flywheel Energy Storage, TDX Corporation

AEA has received reports for all of the Round 1 and 2 projects. The progress reports and final reports have all been submitted to the Denali Commission as they were received.